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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/940,072	08/27/2001	Hong Yang	H0498/7155	3068
23628	7590	02/25/2004	EXAMINER	
WOLF GREENFIELD & SACKS, PC FEDERAL RESERVE PLAZA 600 ATLANTIC AVENUE BOSTON, MA 02210-2211			FIORILLA, CHRISTOPHER A	
			ART UNIT	PAPER NUMBER
			1731	

DATE MAILED: 02/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/940,072

Applicant(s)

YANG ET AL.

Examiner

Christopher A. Fiorilla

Art Unit

1731

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 15 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-4, 6, 7, 9-38, 50 and 52-59 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 59 is/are allowed.
- 6) ☒ Claim(s) 1-4, 6, 7, 9-34, 37, 38, 50 and 52-58 is/are rejected.
- 7) ☒ Claim(s) 35 and 36 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

1. Claims 1-4,6,7,9-34,37,38,50,52,53,54,55,56,57 and 58 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a process which utilizes an elastomeric mold (e.g. page 5, line 27; page 7, line 3; page 7, line 18), does not reasonably provide enablement for the process as generically claimed. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to practice the invention commensurate in scope with these claims.

More specifically, the specification does not teach the use of molds other than elastomeric molds (e.g. metal molds), thus claims which are not limited to elastomeric molds are not enabled by the specification.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1,2,3,4,6,7,9,18,19,21,22,25,26,32,33 and 56 are rejected under 35 U.S.C. 102(b) as being anticipated by Fain et al. (5,340,515).

Fain et al. discloses a method comprising:

providing a mold having at least one component with at least one dimension less than 100  $\mu\text{m}$  (see e.g. col. 3, lines ;  
filling the mold with a ceramic precursor; and  
heating the ceramic precursor under an inert atmosphere to produce a ceramic structure. Note that a moisture containing atmosphere would not be inert because the mold is made from carbon which would react with moisture. Further, note Fain et al. discloses a nonoxydizing atmosphere (e.g. col. 4, line 31). A moisture containing atmosphere is oxidizing.

Further note the disclosure of Fain et al. with respect to the following claims:

*Claims 2,4 and 6:*

Fain et al. also discloses a ceramic precursor comprising at least three different elements (e.g. col. 3, lines 66-68).

*Claim 3:*

Fain et al. discloses that the precursor comprises aluminum or silicon (col. 2, line 62) and carbon (col. 4, line 7).

*Claim 7:*

Fain et al. discloses that the step of heating is performed under an inert atmosphere (e.g. col. 3, line 10).

*Claim 9:*

Fain et al. discloses modifying the viscosity to fill the mold (e.g. col. 3, lines 1-3).

*Claim 18:*

Fain et al. discloses filling the mold by capillary action (e.g. col. 3, line 5).

*Claims 19, 21, 22:*

Fain et al. discloses curing the ceramic precursors in the mold (e.g. col. 4, line 61).

*Claim 25 and 26:*

Fain et al. discloses removing the mold from the product by e.g. physically removing it (e.g. col. 3, lines 21-24).

*Claim 32:*

Fain et al. discloses a single precursor. Note that the term single precursor may include various components to the precursor.

*Claim 33:*

Fain et al. discloses that the precursor comprises a polymer (e.g. col. 4, lines 6-8).

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claim 50 is rejected under 35 U.S.C. 103(a) as being unpatentable over Furlani et al. (5,893,206) in view of Stephens (5,219,925).

Furlani et al. discloses a method comprising:

providing a mold; and

filling the mold with ceramic precursor.

Furlani et al. does not disclose a step of silanizing the mold.

Stephens discloses a composition for silanizing mold surfaces into order to impart mold release properties thereto. It would have been obvious to one skilled in the art to use this mold release material on the mold disclosed in Furlani et al. to optimize the molding process. Note that Furlani et al. discloses that the molding material contains a water soluble binder (col. 5, line 7). Water soluble binders include the polymers disclosed in Stephens (col. 1, lines 54-60) as being useful with the mold release material.

7. Claims 35 and 36 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. Claim 59 is allowed.

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9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher A. Fiorilla whose telephone number is (571) 272-1187. The examiner can normally be reached on M-F, 6:30am-3:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven P. Griffin can be reached on (571) 272-1189. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



**Christopher A. Fiorilla**  
**Primary Examiner**  
**Art Unit 1731**

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